Jl S. Afr. Bot. 47 (4):837–839 (1981)

BOOK REVIEWS

FIELD AND LABORATORY EXERCISES IN ECOLOGY, by Stephen D. Wratten and Gary L. A. Fry, with pp. 227, soft cover, 227 × 148 mm. Edward Arnold Ltd., 41 Bedford Square, London WC1B 3DQ, 1980. R17.80.

The stated aim of this book is to show how modern numerical techniques in plant and animal ecology can be used practically at school, college and undergraduate level to demonstrate many of the fundamental principles of ecology. The authors, from Southampton and Scotland respectively, have gone a long way to achieving their aim in a fairly simple, well-indexed, illustrated and referenced text. However, the examples and exercises are all from Britain and so the relevance to South African conditions is usually fairly remote. Nevertheless most of these can be readily interpreted if the teacher and/or lecturer is willing to adapt the text to local conditions.

The text is divided into five major sections which are: sampling, spatial pattern, populations, population interactions and community analysis.

I felt that the section on sampling should have had a section on the determination of minimum or optimum quadrat size. Also the line intercept method is not mentioned which is a pity. Otherwise the sampling section is adequate with both field and laboratory exercises given. The section on spatial pattern has adequate cover with exercises on the detection of pattern, scale and the detection of directional pattern. The sections on populations and population interactions is essentially animal orientated but there are exercises on survivorship curves of woodland trees and cycling variation in *Culluna vulgaris*, as well as some ideas for studying plant-animal interactions and allelopathic effects of barley on weed species. The final section on community analysis is perhaps the best section and some interesting and stimulating exercises are discussed. These include diversity, species interactions, ordination and classification. It is a pity that a brief introduction to classical phytosociological classificatory techniques is omitted from this section.

In conclusion I would recommend that all teachers of ecology should certainly consider this publication as a possible addition to their library as there is much to gain from it. However, as a basic text for our region it is not really satisfactory.

E. J. MOLL

PHYSIOLOGICAL PLANT ECOLOGY, by W. Larcher, with pp. xvii + 303, 193 figures and 47 tables. 228 × 152 mm. Berlin, Heidelberg, New York: Springer-Verlag, 1980. Soft cover, approx. US $34,90.

This is a well-revised second edition which although it has lost some of the more detailed information of the first edition, has covered the field of physiological plant ecology extremely well. The concepts given and the examples used to illustrate them are up-to-date, and the bibliography is fairly comprehensive. To have covered the field as well as Larcher has done in this present, fairly modest volume, is certainly an achievement.

The layout of the book is good with an introductory chapter on the environment of plants followed by one on radiation and temperature. This is followed by chapters on carbon utilization and dry matter production, the utilization and cycling of mineral elements, water relations, and finally a synopsis in which there is an analysis of ecological factors and some commentary on data synthesis, ecological models and computer simulation.

Throughout the book the examples chosen are such that plants from environmental extremes have been selected to demonstrate the factor being considered. So we find the radiation load of a cactus is compared to that of an alpine plant, the seasonal variation in starch storage in deciduous trees is compared to that of evergreen trees, and the water balance of an oak with and without leaves is discussed.

As the author mentions in the preface, this book "is not intended as—nor could it be—a comprehensive textbook of plant ecology; it is one of many possible ways of presenting what is known in the field." Although many of the examples chosen are not South African ones, the concepts considered often are and the current edition would be extremely useful as an undergraduate text for any physiological plant ecology course. The book is also an extremely useful postgraduate reference and a must for every library.

E. J. MOLL

ECOLOGY, by Hermann Remmert, with pp. viii + 289, 189 figures and 12 tables. 242 × 266 mm. Berlin, Heidelberg, New York: Springer-Verlag, 1980. Soft cover, approx. US $29,90.

Although the author has achieved a much more functional approach to the study of ecology than many others, this is really just another ecology text by a European zoologist. This may sound unkind, but the relevance of the book to the South African situation is minimal, and it is even less applicable to the South African plant ecologist. Nevertheless the text is written in an easily readable style, and it does make interesting and stimulating reading. The examples are well chosen and the index and bibliography are adequate.

This book would be a very useful acquisition to libraries, and it may also be a useful undergraduate text for certain courses in ecology. In the main, however, this text will probably not prove very popular as there are other better suited texts in the field.

E. J. MOLL

TAXONOMIC ASPECTS OF AFRICAN ECONOMIC BOTANY: PROCEEDINGS OF THE IX PLENARY MEETING OF ASSOCIATION POUR L'ETUDE TAXONOMIQUE DE LA FLORE D'AFRIQUE TROPICALE (A.E.T.F.A.T.). Las Palmas de Gran Canaria, 18–23 March, 1978, edited by G. Kunkel, with pp. 250. Obtainable from: The Secretary, Bentham-Moxon Trust, Royal Botanic Gardens, Kew, Richmond, England TW9 3DS. Price £11. Surface postage paid.

With the tenth Plenary Meeting of A.E.T.F.A.T. planned to take place in Pretoria from 19–22 January, 1982, it is pertinent to review the Proceedings of the ninth Plenary Meeting which are contained in a cleanly attractive, clearly printed, not very strongly bound, modestly sized volume published in September, 1979.

The main theme of the ninth session was taxonomic aspects of African economic botany. Of the nearly sixty lectures presented, only nineteen contributed to this theme. The essence of these lectures is given in Part II of the Proceedings, subtitled Notes on African Economic Botany, and introduced by F. N. Hepper of the Royal Botanic Gardens, Kew.

These papers deal with families of plants (7), genera (5), species (2), or concern groups of plants with special significance to man (5—for example, edible products; water plants; coverage of mining wastes).

Most of the papers are short and while being ". . . fascinating and instructive . . ." to quote Hepper in his introduction, are essentially reviews that reflect very directly the paucity of recorded knowledge relating to the economic importance of indigenous African plants, and the extent of work awaiting the researcher in this field and in the field of ethnobotany. The last paper in this Part is a general one by J. B. Gillett of the East African Herbarium, Nairobi. I draw attention to it in particular because it carries a significant message for the young and the potential biological scientists of the African continent by stressing the need for the recording, and thus preserving, of the tribal uses of wild plants, information very hard-won by generations of ancestral people and usually closely guarded.

Without doubt, here is an extremely worthwhile aspect of research awaiting those with biological or pharmacological interests whose background is set in, among others, the independent countries so closely related geographically to South Africa, and who, because of this advantageous association, are so especially suited to undertake this work.

Part III, subtitled Systematics, Sociology and Geography, encompasses twelve papers. The content is varied and always interesting: some are longer and more detailed than are the majority of papers of Part II. As might be expected from the subtitle, nearly all the articles deal with a particular plant group from a particular aspect. Seven are written in French.

Part IV (11 papers) comprises progress reports which record advances and proposals for advances in floristic and phytogeographic research in the flora of Africa south of the Sahara. This Part is thus in keeping with the traditions of A.E.T.F.A.T.

Part V (11 papers) covers Projects and Miscellaneous Communications. Here are set out statements of work being undertaken and methods being followed; difficulties experienced by institutions and by individual workers; an appeal, and two longer articles, the one dealing with alien plants in South Africa, the other with mimetic weeds.

Part I differs from all the other Parts. In it are reproduced the texts of three inaugural lectures presented during the Las Palmas Meeting. These lectures commemorate the life and work of C. Linnaeus (presented in French by O. Hedberg); C. P. Thunberg (B. Nordenstam); and A. P. de Candolle (J. Miege). Each is relatively short and historically significant in the context of the taxonomic botany of the African flora. Collectively these texts make a worthy opening to a volume that should prove stimulating as a source of ideas to postgraduates commencing their careers. Established researchers will also find many aspects to hold their attention and much to provoke them yet again to the thought that in relation to assessment of the world's natural plant resources, far too little is known of the flora of Africa south of the Sahara.

The book itself is pleasing to handle, but it will not endure too much of this without showing signs of wear. In the foreword the editor refers to certain "technical hitches" which delayed publication, so the reader is conditioned to expect some possible inaccuracies in the text: but these do not obtrude. Illustrations are not numerous because a majority of the papers do not require clarification by this means. Those that are included are generally well reproduced and easily interpreted. There are comprehensive lists of references with most of the papers. No index is included and I found unusual the placing of the page of contents at the end of the volume rather than at the beginning.

K. D. GORDON-GRAY